bx_XL V3

Plugin Manual

Loud - Reliable - Done

BRAINWORX
by Native Instruments

Plugin Alliance
by Native Instruments

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1. Welcome to bx_XL V3

The bx_XL delivers unique tonal, dynamic, and spatial control of any stereo audio source by employing MS (mid/side) technology.

Our updated and overhauled bx_XL V3 is a dual-band mid/side-Compressor and true peak limiter that is designed to help you achieve the perfect balance of loudness and clarity in a wide spectrum of mixing and mastering tasks. Its primary purpose is to provide a level of loudness that is as competitive as any major label production, while still maintaining the integrity and clarity of your audio.

One of the standout features of the bx_XL V3 is its true peak limiter, which is a powerful tool that helps you avoid any unwanted distortion or clipping that can occur when mastering audio. The true peak limiter ensures that your audio stays within the acceptable limits of digital audio, while still allowing you to push the levels to achieve the desired loudness.

Another great feature of the bx_XL V3 is its mid/side processing, which enables you to control the levels of the mid and side channels separately. This gives you greater control over the stereo image and allows you to create a more balanced and spacious mix.

The bx_XL V3 also comes with advanced metering options that make it easy to monitor your levels and ensure that your audio stays within the desired loudness range.

Overall, the bx_XL V3 is an essential tool for anyone who aim for professional quality that is both loud and clear. Whether you are a mastering engineer, a producer, or a musician, the bx_XL V3 is a versatile and powerful tool that can help you achieve the perfect balance of loudness and clarity in your mixes.

ⓘ Download and install your plugin using our Installation Manager:

Thank you for choosing bx_XL V3. We hope you enjoy it!

New in bx_XL V3

- New Brainworx user interface for better usability
- Enhanced precise metering
- True Peak Limiter with two modes: Modern & Classic
- LUFS metering with target settings

2. Key features

The following list gives you an overview of bx_XL V3's key features:

- True Peak Limiter
- Splits stereo signal into mid and side signals
- Splits the mid-signal into low and high bands using our established Phase-X phase-linear crossover filters
- Fader-Link for streamlined parameter-linking (Gain Boost & Threshold)
- Gain and individual panning for mid and side signals to control the stereo balance.
- Mono-Maker
- Stereo Width control (separated mid and side gain in the summing amp)
- Multiple solo features including “Auto Solo” mode
- Multiple level meters to observe correlation, balance, loudness, and more

3. Overview

bx_XL V3 consists of the following areas and main controls:

1. **Top Toolbar**: Additional global controls relevant to the plugin's processing. For more information, refer to *Top toolbar*.
2. **XL Compressor**: Three separate bands of XL saturation and limiting. For more information, refer to *XL Compressor Section*.
3. **Global**: Lets you configure settings for all bands simultaneously. For more information, refer to *Global (Link Section)*.
4. **True Peak Limiter**: New to V3, the True Peak Limiter prevents DA-converter clipping caused by the output signal. For more information, refer to *True Peak Limiter*.
5. **Crossover**: Divides the mid signal in two bands to enhance detail and punch. For more information, refer to *Crossover*.
6. **Custom Sidechain**: Mixes different sources into the customizable sidechain path. For more information, refer to *Custom Sidechain*.
7. **Solo Section**: Lets you audition each channel individually. For more information, refer to *Solo Section*.
8. **IO Levels**: Adjusts the stereo and MS levels separately. For more information, refer to *IO Levels*.
9. **Metering Section**: Offers modern and precise metering to give you detailed insights into you material. For more information, refer to *Metering Section*.
10. **Summing Amp**: Adjusts the final output of the plugin. For more information, refer to *Summing Amp*.
11. **Bottom Toolbar**: Preferences, license information, and documentation. For more information, refer to *Bottom toolbar*.

4. XL Compressor Section

The extracted part of the incoming material will pass a dynamic processor including a dedicated XL-generator providing gentle to heavy odd harmonics exclusively to the depending band. This allows to enrich for example the side information when it needs to stand out in an unconditional manner: instead of simply adding volume to the sidesignal (which is also possible at the output's summing amp) harmonics take the job to enhance the stereo field.

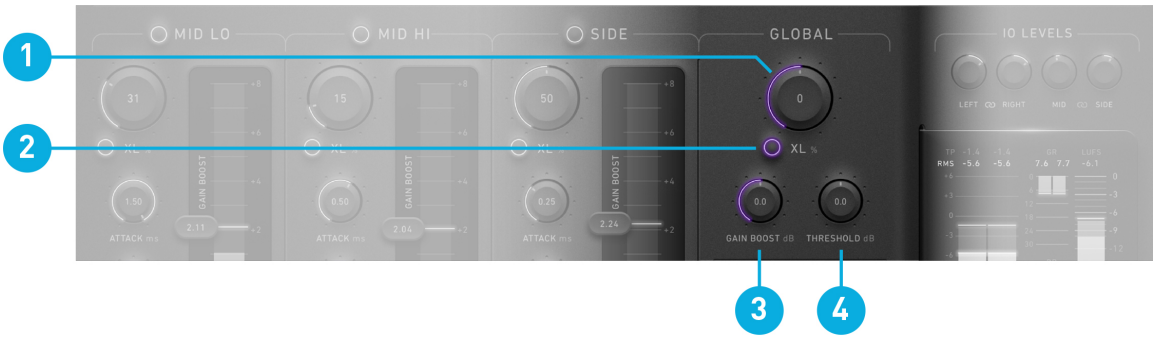
Each band of the compressor section consists of the following identical controls:

1. **Band Button [Active]**: All features (including the XL knob) of each band will be bypassed when a module is switched off.
2. **XL%**: The XL function allows to push the signal and add warmth by the application of smooth third and fifth order harmonics. Aliasing is prevented due to a special filtering process. Using the XL feature will let a source sound louder without really altering the actual audio level too much.
3. **XL [Active]**: Activates or deactivates the addition of XL-saturation per band.
4. **Gain Boost**: The bands' Gain Boost faders internally drive the respective audio into the limiter. The “hotter” a channel gets driven, the more gain reduction will be applied when the channel hits the “ceiling” set by the threshold-parameter
5. **Attack**: Sets the amount of time that must elapse once the input signal reaches the threshold level before compression is applied.
6. **Release**: Sets the rate at which gain returns to normal after the input signal level has fallen below the threshold.
7. **Threshold**: This control sets the level at which limiting starts to take effect.
8. **Fader Link**: When engaged, “Fader Link” will link the gain boost fader and the threshold fader to “drive that channel into the limiter” harder or softer without altering the overall volume of that channel. The **Gain Boost** and **Threshold** sliders will automatically be moved contrarily when **Fader Link** is activated. Gain Boost “up” results in the Threshold being pulled down automatically and vice versa!
9. **[Band] Solo**: To isolate and listen to any band, press its solo-switch. Soloing any other channel deactivates any previous solo-state. You can also deactivate by clicking the same solo-switch again when it is active. Several solo knobs cannot be linked; only one solo knob can be activated at the same time.
10. **Sidechain**: When a band's sidechain switch is active; instead of passing audio, the custom sidechain signal will drive the band's compressor.

5. Global (Link Section)

A comprehensive solution to engage speed when establishing a qualified setting for audio material is the "Global" section in form of a master set of knobs for any XL amount, boost and threshold parameters controlling the single bands regarding their offsets.

This section consists of the following controls:

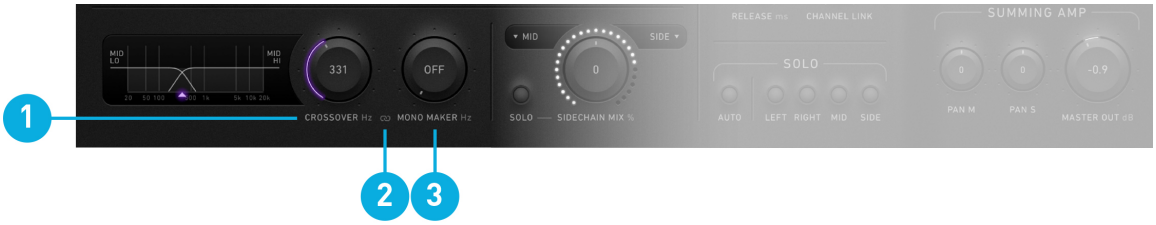


1. **Global XL%**: Adjusts the levels of all individual **XL%** settings by the given value.
2. **Global XL On**: Deactivates XL processing simultaneously for the **Mid Lo**, **Mid Hi** and **Side** bands. Reactivates any **XL [Active]** parameter that had not been previously disabled; the global XL switch remembers in which individual band XL was set to ON or OFF prior to dis- and re-engaging global XL On.
3. **Global Gain Boost**: Adjusts the individual bands' **Gain Boost** by the selected value.
4. **Global Threshold**: Shift the bands' **Threshold** parameter as a group while keeping their weighting previously set up in the separated controls.

6. Crossover

Any incoming stereo source will be transferred into mid and side signals. The mid- or mono-information of the source splits into an upper (**Mid Hi**) and lower band (**Mid Lo**) passing our established phase neutral "Phase-X" crossover. Both, Mono- and Stereo-information (Mid- and Side-signal) pass the **Mono-Maker** to optimize mono compatibility and define concentrated center-weighted punch in the bass region.

This section consists of the following controls:



1. **Crossover [Hz]**: Defines the frequency at which the mid-signal will be split into the **Mid Lo** and **Mid Hi** bands by applying our established 'Phase-X' phase-linear crossover. Mid Lo and Mid Hi will be combined to a phase-coherent mono sum after passing their individual processing.
2. **Chain Icon [Frequency Link]**: Links the frequencies of crossover and Mono-Maker.
3. **Mono Maker**: Sweepable from 20 Hz to the maximum available frequency, this parameter folds the processed sound to mono at below and frequency set.

7. Custom Sidechain

A very special feature of bx_XL since its first version is the ability to mix sidechain sources. Not only can the side, mid lo and mid hi information separately get injected to any band, it is also possible to mix any band with an external key source allowing to duck a band to incoming key-sources enabling a widely desired smooth ducking effect when for example vocals need space in the mid signals higher band.

> ⓘ New with bx_XL V3: A dedicated metering for the selected sources to be mixed appears next to the mix-knob.

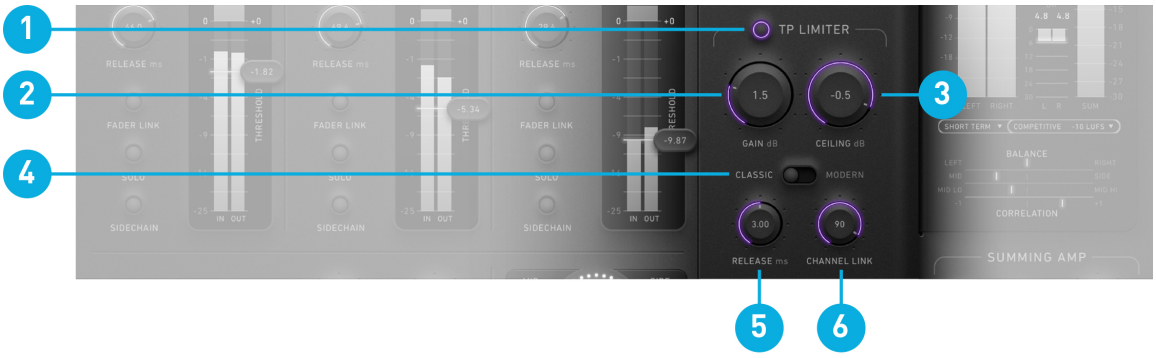
This section consists of the following controls:

1. **[Source] Drop Down Menu**: Click on the two drop down menus that are located in the corners above the **Sidechain Mix** knob in turn to pick the signal sources for bx_XL's custom sidechain signal.
2. **Sidechain Mix**: The Sidechain Mix blends the selected sidechain sources together in any proportion by rotating the Sidechain Mix knob into the direction of the selected source's tabs. The blended custom sidechain signal serves as key-signal for any or all of the 3 bands (Mid Lo, Mid Hi or Side) which have their sidechain switch activated.
3. **Solo [Sidechain Mix]**: The sidechain's solo-switch monitors bx_XL V3´s sidechain signal, enabling isolated observation of the sidechain mix.

8. True Peak Limiter

Leaving the multiband part of bx_XL V3, the enhanced audio will enter the upgraded limiter section, which now includes **Modern** and **Classic** modes plus the highly desired **True Peak** functionality based on our *bx_True Peak Limiter*.

This section consists of the following controls:

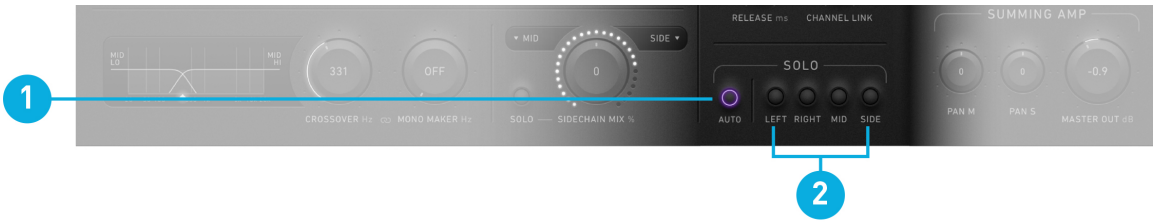


1. **TP Limiter Button [Active]**: Activates the true peak limiter's processing on and off. The true peak limiter is active when the button is lit.
2. **Gain**: The limiter's input gain drives the sum of all bands acting like an interstage make-up level for gain-staging the internal chain.
3. **Ceiling**: The true peak limiter's ceiling sets the absolute max-peak with brickwall characteristics. Possible applications reach from careful overshoot protection to massive squash of material when increasing density of many instruments.
4. **Classic | Modern**: Mode-switch to chose between two models:
   - Classic is a safe and less punchy mode
   - Modern reacts faster, delivers more punch and suits very well when applied to many modern music genres
5. **Release**: Sets the rate at which gain returns to normal after the input signal level has fallen below the Threshold.
6. **Channel Link:** Channel Link sets the continuously variable linking of the channels in the limiter's sidechain:
   - **100%** fully links both channels - the highest level determines gain reduction. Stereo image is kept untouched.
   - **75%** is the default setting and our recommendation for mastering music.
   - **0%** unlinks the limiter's sidechain to work independently for both channels.

9. Solo Section

Each channel of passing audio can be isolated and observed by hitting the associated Solo-Switch. Check the *signal flow's simplified block diagram* to determine the exact position of the solo taps.

The Solo Section consists of the following controls:



1. **Auto [Solo]**: Enabling Auto Solo will automatically solo the channel of the element you are clicking. As soon as and as long as you are clicking it.

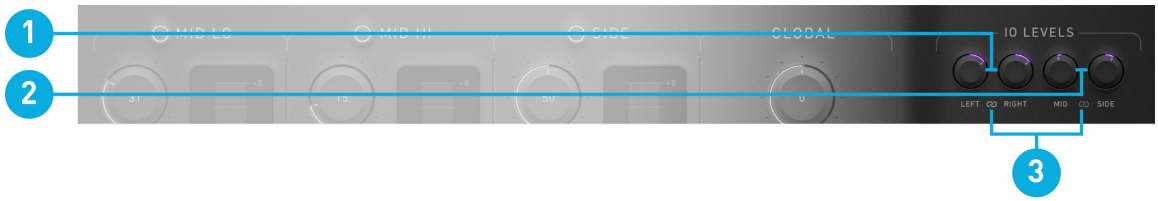
   > For example, clicking the Threshold-Fader of the Side-Channel and holding it will solo the Side-Channel until you release the mouse click when Auto Solo is engaged.

2. **Left | Right | Mid | Side [Solo]**: You can listen to the various elements of your stereo mix by using our solo knobs.

10. IO Levels

Adjusting in-and output-levels of bx_XL V3 is available in this upper right corner of the plugin. Separated controls allow stereo-channel calibration at the input stage, whereas output levels offer mid and side channel regulation.

This section consists of the following controls:



1. **Left | Right**: Adjusts the input level of the plugin.
2. **Mid | Side**: The separated **Mid-** and **Side-Gain** parameters are driving the XL's sum into the true peak limiter. **Stereo Width** is controlled by trimming the side's gain in opposition to the mid's gain, which is able to refocus the stereofield's center focus.
3. **Chain Icon [Gain Link]**: The little "Link-Icons" couple the addressed parameters while keeping their given offset.

Adjusting the stereo width

bx_XL V3 does not offer our common stereo width as a parameter. Instead, **Side-Gain** can be used for the same purpose

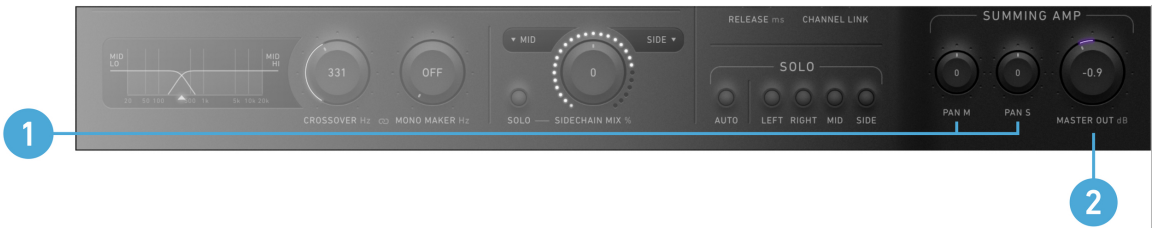
Attenuation of the mid-signal of around -1.5 dB in addition to a +1.5 dB boost of the side-signal will extend the stereo width by the resulting offset of +3 dB. The following chart lists the gain settings compared to common stereo-width values in percent:

Side Gain in dB (M<>S Offeset)	Stereo Width in percent
-6.00 dB	25%
-4.50 dB	35.5%
-3.00 dB	50%
-1.00 dB	79.5%
0.00 dB	100%
+1.50 dB	141%
+3.00 dB	200%
+4.00 dB	251%
+6.00 dB	400%

11. Summing Amp

After the mid-bands and the side signal have been processed and the midrange was summed, they reach the **Summing Amp**. Here the mid- and side-signals can be placed independently in the stereo image, and the output volume of the entire process can be determined.

This section consists of the following controls:



1. **Pan-M and Pan-S**: Panning the mid-channel shifts signals out of the center of your mix, while panning the side-channel rather tilts your stereo information around the stable mid-information.
2. **Master Out**: Adjusts the output level of the plugin.

> **Master Out** helps to set the exact output level if setup in combination to the true peak limiter's ceiling: Ceiling set to -6.00 dB allowing for headroom in combination with a +5.30 dB boost at the output will result in a safe and secure -0.70 dBfs maxPeak.

12. Metering Section

Up to date metering now includes a LUFS-meter with targeting options and stereo visualization and high precision peak hold readouts.

This section consists of the following controls:

1. **Output max. Peak Readout**: Shows peak-meter's hold value as a numerical value in a text label.
2. **Output max. RMS Readout**: Shows RMS-meter's hold value.
3. **Output True Peak Meter**: Shows peak values as true peak measurement in dBTP according to EBU/ITU standards.

> Click anywhere on the metering area to reset the meters, including the maximum True Peak and maximum Momentary Loudness value.

4. **GR**: This meter shows the **Gain Reduction** applied by the compressor section.
5. **DR**: Displays the **Dynamic Range** or crest factor of the signal. This is a helpful tool to determine the density and dynamics of the material.
6. **LUFS**: Displays the perceived loudness of the processed signal in LUFS (Loudness Units Full Scale) according to EBU/ITU recommendations. The selected **Loudness Target** determines a white "safe zone" and red overshoot range to monitor the real time loudness.
7. **Loudness Timescale**: Can be switched between momentary with a window of 400ms or short term, averaging over 3 seconds to provide the option to switch between two EBU recommended scales for real time loudness measurement.
   With **Momentary** selected, the readout will hold the maximum momentary value that occurred in the signal until the meter is manually reset.
8. **Loudness Target**: Adds a visual guide to the LUFS meter depending on the purpose and destination of your material. The custom option lets you specify a desired target loudness.
9. **Balance**: Shows the position of the acoustic center in the stereo field (**LEFT**/**RIGHT**), the weighting between mid and side signal (**MID**/**SIDE**), and between the low-mid and high-mid signal (**MID LO**/**MID HI**).
10. **Correlation**: Shows the correlation of the left and right channel to prevent phase cancellation.

13. Top toolbar

Additional global controls related to plugin settings and processing are available in the top toolbar.

1. **Power:** Bypasses the processor when disengaged.
2. **UI Size:** Sets the size of the plugin's user interface.
3. **↩ ↪:** Undo and redo changes made to controls up to 32 steps.
4. **Bank A B C D:** Each preset allows you to switch between four banks (A, B, C, D) of controls.
5. **Copy:** Copy the active settings to memory.
6. **Paste:** Paste the copied settings to the active bank.
7. **Reset:** Reset the current bank.
8. **UI Color:** Changes the primary color of controls and meter indicators.

Beneath the top toolbar you can find the Brainworx logo:

1. **Brainworx Logo:** Clicking the Brainworx logo or the plugin's title will open a splash screen containing team credits and allow you to set the default UI color.

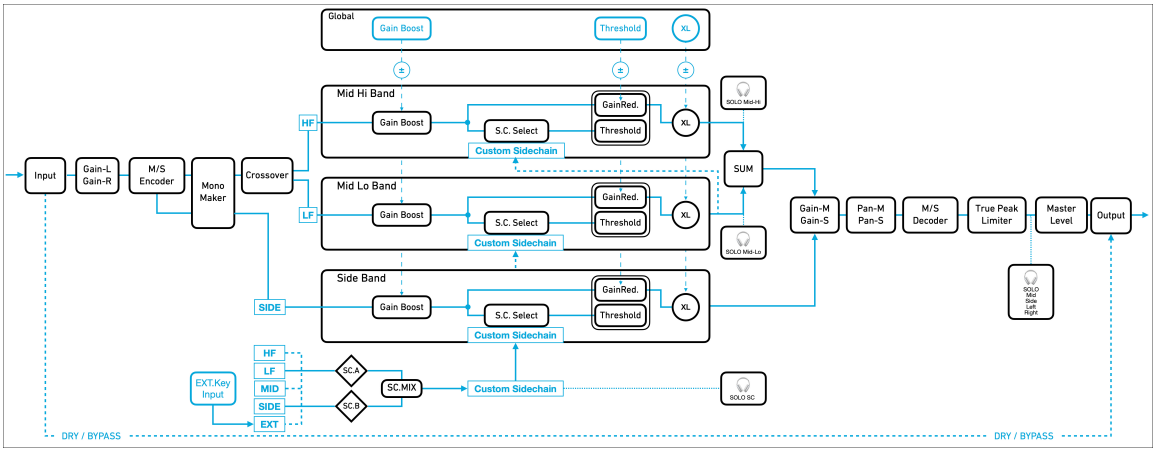
14. Bottom toolbar

Preferences, license information, and documentation are available in the bottom toolbar.

1. **Plugin Alliance Logo**: If your computer is online, clicking the Plugin Alliance logo will take you to the Plugin Alliance website via your web browser.
2. **License Info**: The toolbar displays information about the type of license you're running. Trial licenses are displayed along with the number of days until expiration; there is no note for full licenses, as these are unlimited.
3. **Dollar Icon:** If you are using a demo/trial version of a Brainworx product, you can click this icon to open a browser that redirects you to the respective product page in the Plugin Alliance store. Here, you can purchase a product without searching for it on the Plugin Alliance website.
4. **Key Icon:** Clicking on the key icon brings up the activation dialog, allowing you to manually reauthorize a device in the event of a license upgrade or addition. You can also use this feature to activate additional computers or USB flash drives.
5. **Help Icon:** Clicking the help icon opens a context menu that links to the product manual PDF and other helpful links, such as checking for product updates online. You must have a PDF reader installed on your computer to read the manual.

15. Signal flow

The internal signal flow of bx_XL V3 is of a complex nature. The block diagram of the internal processing should help understanding interaction of parameters and allows to identify and clear up possible vagueness.



16. Additional information

Modifier keys

You can use the following keyboard commands to control bx_XL V3.

Function	AU	VST / VST3	AAX
Fine Control	[shift]	[shift]	• Mac: [command] • Win: [Ctrl]
Jump between default and last setting	[option]	• Mac: [command] • Win: [Ctrl]	• Mac: [option] • Win: [Alt]
Output Link	[command]	• Mac: [option] • Win: [Alt]	[shift]

Online resources

System requirements & supported platforms:

https://www.plugin-alliance.com/en/systemrequirements.html

Details about your product:

https://www.plugin-alliance.com/en/products/bx_xl_v3.html

Installation, activation, authorisation and FAQ:

https://www.plugin-alliance.com/en/support.html

Credits

Programming and Algorithms: Stefan Schönefeld, Raimund Dratwa, Michael Massberg, Alexandra Draghici, Florian Göbel

UI-Design: Goran Lizdek, Nico Lezim

Product Management: André Frauenstein, David Stoll

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